L 13557-63
ACCESSION NR: AP3000704

suggesting a pleated chain structure in the unheated monofibers. Orig. art. has: 9 figures.

ASSOCIATION: Fiziko-khimicheskiy institut imeni L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 23Nov61 DATE ACQ: 17Jun63 ENCL: 00

SUB CODE: CH NO REF SOV: 007 OTHER: 004

Card 2/2

RAZIKOV, K.Kh.; ZUBOV, Yu.A.; MARKOVA, G.S.; KARGIN, V.A.

Supermolecular formations in oriented polycaproamide. Vysokom. soed. 5 no.5:760-766 My '63. (MIRA 17:3)

1. Fiziko-khimicheskiy institut imeni Karpova.

RAZ'IKOV, K.Kh.; USMANOV, Kh.U.; AZIZOV, U.A.

Fibrous structure of copolymers of cellulose with methacrylamide and methyl acrylate. Vyeskom.soed. 7 no.10:1798-1801 O '65. (MIRA 18:11)

1. Nauchno-issledovatel'skiy institut khimii i tekhnologii khlopkovoy tsellyulozy, Tashkent.

[redacted], K. K.; [redacted], M. M.; AZIZOV, U. O.

"Electronmicroscopic investigation of the microstructure of radiation-grafted cellulose copolymer."

report submitted to 3rd European Regional Conf, Electron Microscopy, Prague, 26 Aug-3 Sep 64.

BERESTNEV, V.A.; RAZIKOV, K.Kh.; KARGIN, V.A.

Particular features of the supermolecular structure of various kinds of viscose fibers. Khim.volok. no.4:51-55 '62. (MIRA 15:8)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (for Berestnev). 2. Fiziko-khimicheskiy institut im. Karpova (for Razikov, Kargin).

(Rayon)

RA[illegible]V, [illegible].Kh.; [illegible], [illegible]; [illegible]IN, V.A., akademik

Investigation of the secondary structures formed in capron fibers. Dokl. AN SSSR 141 no.1:157-160 N '61. (MIRA 14:11)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
(Nylon)

S/190/62/004/006/020/026
B139/B144

AUTHORS: Ramikov, K. Kh., Markova, G. S.

TITLE: Technique of preparing ultrathin sections of polymeric materials

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 6, 1962, 915 - 916

TEXT: Work with the Sjostrand ultra-microtome LKB-Producter for investigating samples of polymer fibers (diameter 15 - 20 μ), mono-fibers (diameter 0.5 mm and above), and films is described. To suit the required cutting direction (horizontal, vertical or inclined) the samples are inserted into gelatin capsules and filled with a mixture of n-butyl- and methyl methacrylates in which benzoyl peroxide has been dissolved. These capsules were kept at 48 - 50°C for 35 - 40 hr. After solidification of the contents the gelatin capsules were stripped and the blocks so obtained cut into square pyramids of 0.2 - 0.4 mm height and 0.4 - 0.5 mm side. The holders containing the specimen were stored in a dessicator over calcium chloride. Small glass plates with bevelled edges served as cutting knives, which in each case were prepared directly before use. A.

Card 1/2

Technique of preparing ultrathin ...

"leucopiast vessel" filled with 20 % aqueous solution of ethanol was used for catching the sections on the ultra-microtome. The current for heating the deflection coil to which the sample holder is fitted was varied within a range of 0.5 - 0.7 a in the course of cutting. The sections produced had a thickness of ~ 200 Å and above. They were studied using an electron microscope and by electron diffraction photography. There are 2 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: April 15, 1961

Card 2/2

BERESTNEV, V.A.; RAZIKOV, K.Kh.; ALEKSEYEVA, Ye.S.; KARGIN, V.A., akademik

Structure of oriented polymeric materials. Dokl. AN SSSR 139 no.5:1093-1094 Ag '61. (MIRA 14:8)

1. Fiziko-khimicheskiy institut im. L. Ya. Karpova.
(Polymers) (Electron microscopy)

S/020/61/139/005/009/021
B104/B201

AUTHORS: Berestnev, V. A., Razikov, K. Kh., Alekseyeva, Ye. S., and Kargin, V. A., Academician

TITLE: Structure of oriented polymers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 5, 1961, 1093-1094

TEXT: The structure of polymers includes a so-called supermolecular formation which reaches beyond the molecular dimensions. The authors used an electron microscope to examine this supermolecular formation on thread sections cut by a microtome. Longitudinal and cross sections were prepared, and special care was taken to save the structure from damages in the cutting process. In this process, all threads were found to split into small fibers with diameters ranging between 1 and 10μ. The fibers had partly a nonoriented, coarse spherulitic structure, and fine globular formations; others had nonoriented macroformations. The authors base on these results to assume that the structure of chemical threads consists of anisodiametric elements, the fibers. The fibers do not contain any

Card 1/2

L 53881-65 EWT(m)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWP(z)/EWA(c) Pf-4 MJW/JD/HM

ACCESSION NR: AP5014895 UR/0135/65/000/006/0015/0017 36 30 8

621.791.92: 621.9.06

AUTHOR: Razikov, M. I. (Cand. of technical sciences); Tolstov, I. A. (Engineer); Pokrovskaya, G. N. (Engineer)

TITLE: Build-up of press tools with weld metal

SOURCE: Svarochnoye proizvodstvo, no. 6, 1965, 15-17

TOPIC TAGS: build-up sequence, press tool, press bushing, press die, carbon dioxide shielded arc, arc welding, flux welding, welding wire, bimetal bushing, powdered metal

ABSTRACT: The Kamensk-Ural'skiy Plant for the Processing of Nonferrous Metals, in collaboration with the Ural Polytechnic Institute, has developed and introduced techniques of building-up machine parts by means of carbon dioxide-shielded arc welding as well as flux welding with special reference to restoring worn press bushings and dies. These press tools are the most expensive and most rapidly wearing parts of presses, since they are subject to sharp fluctuations in temperature and extreme stresses. The plant maintains its own welding department and makes its own welding wire from powdered metal. The build-up

Card 1/2

L 53881-65

ACCESSION NR: AP5014895

6

sequence for the press bushings and dies, as well as for some 28 other machine parts which are currently regularly restored by build-up at this plant, involves the deposition of successive 3-4, 4-5, and 5-6 mm layers of weld metal. The plant has also developed new welding-wire compositions based on metal powders. Thus for example, the replacement of the bushings of a 1,500-ton press, made of 4KhNV steel, with bimetal bushings made of 30KhGSA steel with a built-up working layer of the 2Kh3V10GT type yields savings of as much as 700 kg of nickel annually. Even greater savings of nickel are anticipated on replacing the bushings, plates, and dies of a 3,500-ton press, made of 4KhNV steel, which contains up to 4.5% nickel, with their counterparts made of 5KhNV steel, containing 1.5% nickel, and topped with a wear-and heat-resistant built-up coating. Orig. art. has: 4 figures, 5 tables.

ASSOCIATION: Kamensk-Ural'skiy zavod po obrabotke tsvetnykh metallov (Kamensk-Ural'skiy Plant for the Processing of Nonferrous Metals)

SUBMITTED: 000 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

Card 2/2

L 21188-65 EEC-4/EWG(j)/EWG(v)/EWA(h)/EWT(1)/EWT(m)/EEC(t)/FS(v)-3/EEC(m)/FCC/T/FSF(h)/FSS-2 Pe-5/Pg-4/Pi-4/Pl-4/Po-4/Pq-4/Pae-2/Peb SSD/ASD(a)-5/AEDC(a)/ESD(t)/IDP( ) TT/GW-2/WS

ACCESSION NR: AP5002104 AFWL/BSD/AFMDC/AFETR/ESD(gs)/ S/0048/64/028/012/2039/2044

AUTHOR: Ginzburg,V.L.; Kurnosova,L.V.; Logachev,V.I.; Razorenov,L.A.; Fradkin,M.I.

TITLE. Investigation of primary cosmic rays /Report, All-Union Conference on the Physics of Cosmic Rays held in Moscow 4-10 Oct 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.12, 1964, 2039-2044

TOPIC TAGS: cosmic ray composition, cosmic radiation, solar radiation

ABSTRACT: The paper gives selected data on primary cosmic rays in the region of light nuclei, obtained during flights of Soviet space vehicles, and comparative data obtained by means of radiosondes. /Abstracter's note: The particular sputniks and dates are not given, but these may be specified in the references./ The comparative data were obtained by means of photographic emulsions and Cerenkov counters. A table lists the values of the L/S ratio; another table gives the values of the percentages of Li, Be, B, C and N and heavier nuclei referred to the total flux with $Z \geq 3$. The satellite and balloon data on the L/S ratio are reasonably consistent; the agreement is somewhat poorer for the percentages. Figures give data on the fluxes of alpha particles, nuclei with $Z \geq 5$ and nuclei with $Z \geq 12$

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L 21188-65
ACCESSION NR: AP5002104

for different energies; the flight trajectory corresponding to a brief flare-up in solar activity; and variations with time of the counting rates of the space vehicle gas-counter telescope and Cerenkov counter detecting nuclei with $Z > 5$. From brief analysis of the data it is inferred that there may be different cosmic ray production mechanisms operating on the Sun. One should produce cosmic radiation with approximately the chemical composition of the solar atmosphere; another may result in preferential acceleration of heavy nuclei. Further data are needed before one can draw definitive conclusions regarding the nature of the solar cosmic ray production mechanisms. Orig.art.has: 2 tables and 4 figures.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: AA

ENCL: 00

NR REF SOV: 011

OTHER: 006

2/2

L 24693-65 FSF(h)/FSS-2/EWT(1)/EEC(m)/FS(v)-3/EWG(v)/FCC Pe-5/Pg-4/P1-4/P1-4/
Po-4/Pq-4 TT/GW-2

ACCESSION NR: AT4049950 S/2504/64/026/000/0003/0016

AUTHOR: Kurnosova, L.V.; Logachev, V.I.; Razorenov, L.A.; Fradkin, M.I.

TITLE: Some results of cosmic ray studies made with Soviet satellites and rockets

SOURCE: AN SSSR. Fizicheskiy institut. Trudy, v. 26, 1964. Kosmicheskiye luchi (Cosmic rays), 3-16

TOPIC TAGS: cosmic ray, solar burst, Cerenkov radiation, Cerenkov counter, radiation belt, southern anomaly, gas discharge counter

ABSTRACT: The study of the nuclear component of cosmic rays using integral and differential Cerenkov counters is discussed. Nuclei with charges $Z \geq 2$, $Z \geq 5$, $Z \geq 15$ and $Z \geq 28$ were measured in free space. The differential counter had a geometric factor $\Gamma \approx 2.5 \cdot 10^{-4}$ m^2·ster and aperture a $\approx 27°$. The data show the flux of heavy nuclei to be very slight. The energy spectra and chemical composition of cosmic rays were analyzed, data being broken down into 10° intervals of geomagnetic latitude for processing. The latitude dependence of nuclei with $Z \geq 2$ and $Z \geq 4$ is plotted, as is the energy spectrum of nuclei with $Z \geq 2$. It is estimated that Li comprises about 1/6 of the flux of group L nuclei. Evaluation in the range $Z = 7-8$ gave a flux ratio $L/S = 0.31 \pm 0.10$ (Group S = M + H). A 17-minute variation in nuclear intensity was recorded on 12 Sep59.

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L 24693-65
ACCESSION NR: AT4049950

Time dependencies of flux intensities for various nucleus groups during this variation are plotted. All of the more noticeable increases in nuclear flux were accompanied by weak chromosphere bursts and by bursts of radiation at 208-810 mc. The time dependence of the telescope count rate and rate of an integral Cerenkov counter recording nuclei with $Z \geq 5$ are plotted in Fig. 1 of the Enclosure. Results dealing with the earth's radiation belts are also considered (see Table 1 of the Enclosure). Previous work by L.V. Kurnosova et al. and V. L. Ginzburg et al. is discussed. It is stated that the South-Atlantic anomaly is an "arm" of the inner radiation belt, reaching a height of 300 km. It is concluded that the shower produced within the material of instruments mounted near the telescope cannot be the cause of the high counts noted. It is suggested that the cosmic-ray albedo is also not the cause. It is therefore concluded that the question of the increased count at 200-300 km is still open and it is suggested that measurements in the 50-300 km interval with the same instrument might help to solve the problem. Orig. art. has: 3 tables and 7 figures.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 00 ENCL: 02 SUB CODE: AA

NO REF SOV: 015 OTHER: 007

Card 2/4

L 24693-65

ACCESSION NR: AT4049950 ENCLOSURE: 01

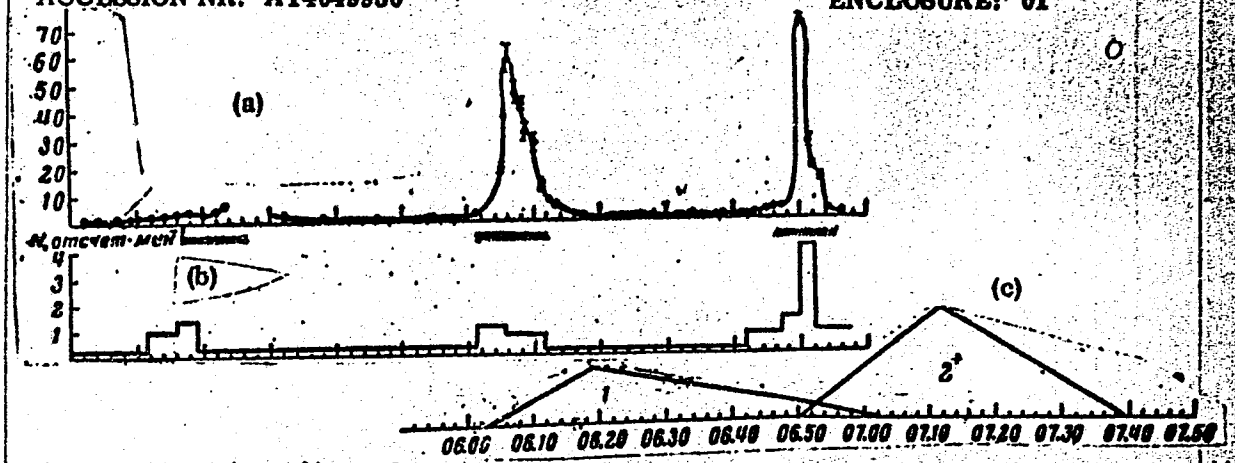

Fig. 1. Time dependence of (a) the telescope count rate, (b) counting rate of nuclei with $Z \geq 5$; the lower part of the figure (c) shows the chromospheric bursts (abscissa = world time). [the hatched areas indicate times of passage of the satellite through the polar regions.]

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L 24693-65

ACCESSION NR: AT4049950 ENCLOSURE: 02

Geomagnetic latitude	Cosmic-ray flux j, particles$\times m^{-2}$, sec^{-1} x ster	$I_{gl}=2\pi j$, particles$\cdot cm^{-2} \times sec^{-1}$	Radiation intensity 2nd Space vehicle: Count rate, imp $imp \cdot sec^{-1}$	2nd Space vehicle: global intensity, particles $\times cm^{-2} \cdot sec^{-1}$	3rd Space vehicle: Count rate, $imp \cdot sec^{-1}$	3rd Space vehicle: Global intensity, particles x cm^{-2}, sec^{-1}
0°	310±10	0,19±0,01	0,83±0,03	1,46±0,03	0,72±0,05	1,30±0,06
10	280±8	0,18±0,01	0,93±0,06	1,57±0,06	0,75±0,07	1,34±0,09
20	310±10	0,19±0,01	1,0±0,1	1,7±0,1	0,76±0,06	1,36±0,07
30			1,3±0,1	2,0±0,1	1,1±0,1	1,8±0,1
40	730±60	0,46±0,04	1,9±0,2	2,6±0,2	1,6±0,4	2,4±0,4
50	1800±200	1,13±0,13	2,5±0,2	3,2±0,2	2,0±0,2	2,7±0,1
60	2900±300	1,82±0,19	2,8±0,1	3,3±0,1	2,2±0,4	2,9±0,3
70	2500±80	1,57±0,04	2,0	2,7	1,9±0,1	2,6±0,1

Table 1. Data from satellite studies.

Card 4/4

GALAKTIONOV, A.T.; DENISOV, Yu.A.; KOPYTOV, G.T.; MASLOV, Yu.A.; NIKONOV, I.P.; PETUNIN, I.V.; KOCHEVA, G.N.; KUZNETSOV, A.P.; LELEKO, N.M.; RAZIKOV, M.I.; SPESHKOV, V.V.; STEPANOV, B.V., STEPANOV, V.V., kand. tekhn. nauk; SHELOMOV, B.Ya.; YUNYSHEV, G.P.; YES'KOV, K.A., dots., retsenzent; BAKSHI, O.A., dots., retsenzent; BEREZKIN, P.N., dots., retsenzent; PATSKEVICH, I.R.,dots., retsentzent; RUDAKOV, A.S., dots., retsenzent; FIZHBEYN, N.B., inzh., retsenzent; KHRUSTALEV, L.Ya., inzh., retsenzent; KRUTIKHOVSKIY, V.G., inzh., red. BOBROV, Ye.I., kand. tekhn. nauk, red. DUGINA, N.A., tekhn. red.

[Welding handbook] Spravochnik rabochego-svarshchika. Pod red. V.V.Stepanova. Moskva, gos. nauchno-tekhnizd-vo mashinostroit. lit-ry, 1960. 640 p. (MIRA 14:6)

(Welding)

KULIKOV, Genrikh Danilovich; RAZIKOV, M.I., kand. tekhn. nauk, retsenzent; DENISOV, Yu.A., inzh., red.; DUGINA, N.A., tekhn. red.

[Built-up welding with a weaving arc] Vibrodugovaia naplavka. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 53 p. (Nauchno-populiarnaia biblioteka rabochego-svarshchika, no.18)
(MIRA 14:9)
(Machinery--Maintenance and repair)

S/125/60/000/009/006/017
A161/A130

AUTHOR: Razikov, M.I.

TITLE: Wear Resistance of Weld Coatings Under Friction at High Temperatures

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 9, pp. 38-42

TEXT: The purpose of the described investigation at the Ural Polytechnical Institute was to find a suitable metal composition for surfacing metallurgical tools. Test specimens were prepared by automatic coating with powder-metal wire under AH-20 (AN-20) flux. Grades and compositions of powder wire were especially developed. Molybdenum with 96% Mo was also tested. The special test installation used is shown in the diagram in cut-away view (Fig. 1). It consists of a silit furnace with a corundum tube for heating specimens, and a lever device, mounted on a lathe and connected to two welding transformers STE-34 (STE-34) connected into open delta. Eight silit heating rods are inside the furnace; current is fed to them through copper

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S/125/60/000/009/006/017
A161/A130

Wear Resistance of Weld Coatings Under Friction at High Temperatures

rings with jaws. A tube of austenitic 0X18H9 (OKh18N9) steel was used for the friction material being tested. Wear was determined by measuring the weight of the specimens. The metal displaced in the test but remaining on the specimens was removed and considered as worn off. Coatings made with wires ПП-Sormayt No. 1 and No. 2, (PP-Sormite); ПП-6Х3В10 (PP-6Kh3V10) and ПП-6Х2В11К4Г2 (PP-6Kh2V11K4G2) had high wear resistance, but the highest resistance of all the metal tried had coatings of ПП-25Х14В14 (PP-25Kh14V14), ПП-25В12М17К6 (PP-25V12M17K6), ПП-30Х15М14К4 (PP-30Kh15M14K4), and molybdenum. No sticking and deformation of metal had been observed with these coatings; the wear consisted in the separation of very small metal particles. This was particularly characteristic of molybdenum (Fig. 3 after test). The chemical composition of all the wires tested is given in the text. The three best powder wire compositions are recommended for practical testing on metallurgical tools working in 1,150-1,200°C.

Card 2/5

S/125/60/000/009/006/017
A161/A130

Wear Resistance of Weld Coatings Under Friction at High Temperatures

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute)

SUBMITTED: August 17, 1959

Card 3/5

RAZIKOV, M-I

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 551 - I

BOOK Call No.: AF639674

Authors: POSTOYEV, I. M. and RAZIKOV, M. I.
Full Title: MANUFACTURE AND REPAIR OF DRILLS BY MEANS OF RESISTANCE WELDING
Transliterated Title: Izgotovleniye burov i ikh remont s primeneniyem kontaktnoy svarki

PUBLISHING DATA
Originating Agency: None
Publishing House: State Scientific and Technical Publishing House of Literature on Ferrous and Nonferrous Metallurgy (Metallurgizdat)
Date: 1953 No. pp.: 107 No. of copies: 4,000
Editorial Staff
Appraisers: Akhun, A. I., Dotsent, Kand. of Tech. Sci., Churin, V. A., Eng., Belov, A. I., Eng.

PURPOSE: The book is intended for middle ranking technicians' and highly-skilled workers in drill-manufacturing shops.

TEXT DATA
Coverage: This book discusses the experience of Ural mines in the manufacture of drills, reinforced by hard-alloy layers, with detachable boring bits. Resistance butt welding and electric heating used for the manufacture and repair of drills are examined. The book contains data on the equipment of drill-sharpening workshops and welding plants, on the selection, installation, adjusting, maintenance and operation of welding machines, and on the choice of welding methods. The pro-

Izgotovleniye burov i ikh remont s primeneniyem kontaktnoy svarki AID 551 - I

cessing of welded butt joints after welding, their defects, the endurance testing of welded drills and safety measures are described. The book is provided with illustrations, tables and diagrams.

No. of References: 17 Russian (1934-1951).

Facilities: Ural Polytechnic Institute im. Kirov, Department of Technology and Welding Equipment, V. N. Bakul', M. M. Kravtsov, A. I. Belov, V. A. Churin, G. V. Cherepanov.

USSR/Metallurgy - Welding, Fluxes Jan/Feb 53

"On Transformations in Welding Slags of Fluxes AN-348, OSTs-45 and B," M. I. Razikov, Cand Tech Sci, Ural Polytech Inst im S. M. Kirov

Avtomat Svarka, No 1, pp 34-40

Using dilatometric and petrographic methods, studies behavior of slags, imbedded into welds in form of macro-inclusions, during heating.

275T45

MIKHAYLOV, G.P.; POTASKUYEV, K.G.; RAZIKOV, M.I.

Leaching out welding slag. Avtom.svar. 6 no.5:73-76 S-O '53.
(MLRA 7:11)

1. Ural'skiy politekhnicheskiy institut im. S.M.Kirova.
(Welding)

RAZIKOV, M.I.

Effect of macroinclusions of slag on the formation of cracks in welded seams. Avtom.svar. 6 no.6:27-34 N-D '53. (MLRA 8:4)

1. Ural'skiy politekhnicheskiy institut im. S.M.Kirova.
(Welding)

RAZIKOV, M.I.

Teaching a course in automatic electric welding. Avtom.svar. 7 no.1:64-65 Ja-F '54. (MLRA 7:7)

1. Ural'skiy politekhnicheskiy institut im. S.M.Kirova.
(Electric welding)

L 40799-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/WB

ACC NR: AP6021001 (N) SOURCE CODE: UR/0125/66/000/006/0016/0020 51

44
B

AUTHOR: Razikov, M. I.; Milichenko, S. L.

ORG: Ural Polytechnic Institute im. S. M. Kirov (Ural'skiy politekhnicheskiy institut im. S. M. Kirova)

TITLE: Mechanism of the cavitational disintegration of built-up metal

SOURCE: Avtomaticheskaya svarka, no. 6, 1966, 16-20

TOPIC TAGS: austenitic steel, cavitation, metal surfacing, phase composition / 30Khl0G10 steel, low carbon steel, Cr-Mn austenitic steel, 1Khl8N3G32 steel, 1Khl8N9T steel, 1Khl3 steel, 1Khl3N4G8 steel, 18-8 low-carbon steel

ABSTRACT: The cavitation resistance of parts of hydraulic machinery may be markedly enhanced by building them up with wear-resistant alloys. To this end, the authors performed comparative studies of the cavitation resistance of various types of built-up metal, including low-carbon, chromium, chromium-nickel and chromium-manganese metals. Cavitation resistance was determined according to the weight loss of specimens tested in an impact-erosion test stand by the method described by I. N. Bogachev and R. I. Mints (Kavitatsion-

Card 1/3 UDC: 621.791.92:669.193.16

noye razrusheniye zhelezouglerodistykh splavov, Mashgiz, M., 1959)(disk rotating at 2970 r.p.m., water jet striking at the rate of ~78 m/sec), with subsequent microstructural examination of the specimens. Findings: of the built-up metals tested (Fig. 1) 30Khl0Gl0 meta-

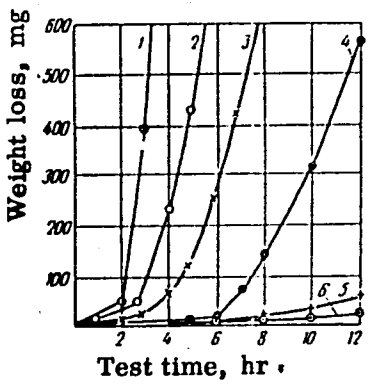


Fig. 1. Cavitation resistance of certain types of built-up metal

1 - low-carbon steel; 2 - 1Kh18N9T Cr-Ni steel; 3 - 1Kh18N3G3D2 steel without heat treatment; 4 - aged 1Kh18N3G3D2 steel; 1Kh13 and 1Kh13N4G8 steels; 6 - 30Khl0Gl0 steel

L 40799-66

ACC NR: AP6021001

stable austenitic Cr-Mn steel (0.21% C, 10.84% Cr, 10.3% Mn, 0.28% Ni, 0.31% Si, 0.21% Ti, 0.16% N) displayed the best results: weight loss over 12 hr was ≤10-12 mg compared with, e.g. 890 mg for 18-8 low-carbon Cr-Ni steel. Evidently the effect of cavitation is associated with structural and phase transformations in the surface layer of the built-up metal under the impact of the high-velocity jet of water; in carbon, chromium, and chromium-nickel built-up metals this leads to local disintegration associated with the presence of ferrite (α-phase), whereas in metastable austenitic 30Kh10G10 steel this leads to greater wear resistance of the surface layer. As exemplified by 30Kh10G10 steel, in order to have a satisfactory cavitation resistance, the built-up metal must have the structure of an unstable Cr-Mn austenite capable of gaining in strength during plastic deformation (caused by the impact of the jet of water) owing to not only work hardening but also to the formation of stronger structural components ($\gamma \rightarrow \alpha_m$ and $\gamma \rightarrow \varepsilon$ transformations leading to the segregation of high-strength phases -- martensite and ε-phase). Orig. art. has: 7 figures, 1 table.

SUB CODE: 11, 13, 20/ SUBM DATE: 08Mar65/ ORIG REF: 002/

Card 3/3

ACC NR: AP6014434 (N) SOURCE CODE: UR/0125/65/000/012/0006/0011

AUTHORS: Razikov, M. I.; Milichonko, S. L.

ORG: UPI im. S. M. Kirov (UPI)

TITLE: Influence of nitrogen on the properties and weldability of cavitation-resistant steel of type 30Kh10G10

SOURCE: Avtomaticheskaya svarka, no. 12, 1965, 6-11

TOPIC TAGS: alloy steel, steel, weldability, arc welding / 30Kh10G10 steel, 20Kh10G10AT steel

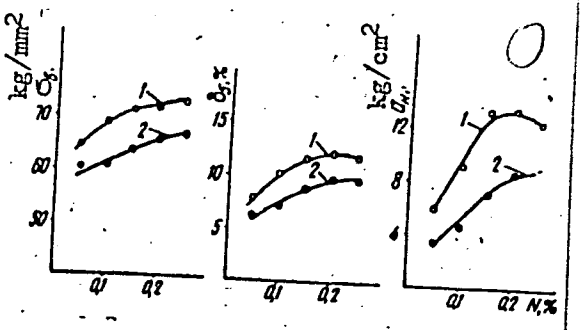
ABSTRACT: The effect of small additions of nitrogen and titanium (in the role of modifiers) to steel 30Kh10G10 on the stability towards cavitation and weldability were investigated. The investigation supplements the results of an earlier study by the present authors, M. I. Raznikov and S. L. Milichenko (O vliyanii titana na svoystva i svarivayemost' stali tipa 30Kh10G10, Avtomaticheskaya svarka, No. 5, 1964). In addition, the mechanical properties and weldability of steel 20Kh10G10AT were also investigated. Electrodes (UPI-30Kh10G10-4 and UPI-30Kh10G10-6 for manual arc welding) and welding rods (20Kh12G13AT and 20K11G12AT for mechanized welding of steel 20Kh10G10AT) were developed. The experimental results are summarized in graphs and tables (see Fig. 1). It was found that small additions of N and Ti to steel

UDC: 621.791.7:532.538

Card 1/2

L 04655-67
ACC NR: AP6014434

Fig. 1. Influence of alloy elements content in the fused metal of type 20Kh10G10 on the mechanical properties of the latter:
1 - fused metal with 0.2% Ti;
2 - fused metal without Ti.



30Kh10G10 considerably improve its weldability. It was further found that steel 20Kh10G10AT posseses good mechanical properties and a satisfactory weldability, so that it may be recommended for use in the construction of cast-welded hydro-machine parts of 60--100 mm thickness. Orig. art. has: 7 tables and 5 graphs.

SUB CODE: 11/ SUBM DATE: 07Apr64/ ORIG REF: 007

kh

Card 2/2

L 04722-67 EWT(m)/EWP(w)/EWP(v)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/NB

ACC NR: AP6027441 (N) SOURCE CODE: UR/0135/66/000/008/0011/0013

AUTHOR: Rezikov, M. I. (Dr. of Technical Sciences); Milichenko, S. L. (Candidate of Technical Sciences) 41 38 B

ORG: Ural Polytechnic Institute im. S. M. Kirova (Ural'skiy politekhnicheskiy institut)

TITLE: Effect of sulfur, phosphorus and silicon on the formation of crystalline cracks in type 30Kh10G10 weld metal

SOURCE: Svarochnoye proizvodstvo, no. 8, 1966, 11-13

TOPIC TAGS: austenitic steel, chromium steel, manganese steel, steel welding, steel impurity, weld defect, welding technology, seam welding, metal welding

ABSTRACT: The effect of S, P and Si on the formation of cracks in chrome-manganese austenite-unstable weld metal of the 30Kh10G10 type was studied and the optimum composition of the weld metal was determined. An unstable austenitic structure is necessary in the weld metal to insure high cavitation resistance. To obtain highly austenitic weld seams of the 30Kh10G10 type the S, P and Si content of the weld metal must be limited. Excess S weakens intercrystalline bonds and lowers

Card 1/2 UDC: 621.791.92.019:669.15-194

L 04722-67
ACC NR: AP6027441

mechanical properties of the metal seams; P increases the tendency toward deep crack formation and Si causes formation of crystalline cracks, probably forming silicide type interlayers. Weld metal of the 30Khl0G10 type steel most suitably contains 0.23-0.28% C, 9-11% Mn, 9-11% Cr, 0.15-0.25% Ti, ≤ 0.5% Si, ≤ 0.03% S and ≤ 0.03% P. By using metal of this optimum composition and observing optimum welding methods it is possible to obtain seams having high mechanical properties and cavitation resistance and little tendency to form crystalline cracks. Orig. art. has: 3 figures and 5 tables.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 006

Card 2/2 afs

L 28470-66 EWT(m)/EWA(d)/EWP(v)/T/EWP(t)/ETI/EWP(k) LIP(c) JD/HM

ACC NR: AP6010139 (N) SOURCE CODE: UR/0125/66/000/003/0011/0014

58
B

AUTHOR: Il'in, V. P.; Razikov, M. I.

ORG: Ural Polytechnic Institute im. S. M. Kirov (Ural'skiy politekhnicheskiy institut)

TITLE: Effect of thermal cycle of welding on the properties and phase composition of 30Kh10G10 chromium-manganese steel

SOURCE: Avtomaticheskaya svarka, no. 3, 1966, 11-14

TOPIC TAGS: austenitic steel, chromium steel, manganese steel, arc welding, thermal effect, cooling rate, phase composition / / 30Kh10G10 austenitic steel

ABSTRACT: 30Kh10G10 austenitic metastable chromium-manganese steel is highly cavitation-resistant and finds application as a protective coating for low-carbon and low-alloy metal of the parts of hydraulic machinery and water turbines. When heated above 600°C, however, its structure becomes unstable, which affects its mechanical properties. Hence it was of interest to investigate the thermal effect of welding cycle on the phase composition and mechanical properties of the metal in the zone affected by the welding heat. Specimens of this steel were tested under conditions simulating the effect of the thermal cycle of single-pass arc welding; the maximum

UDC: 621.791.01:669.140.66.046

Card 1/2

ACC NR: AP6010139

temperature was 1350-1400°C and the cooling rate varied within the limits of from 600 to 0.15°C per sec in the 750-650°C range. In this case the time of stay of specimens of this steel (3-5 mm thick sheets) in the dangerous temperature range (800-600°C) is determined by their cooling rate. The lower the cooling rate is, the greater the effect of the thermal cycle on the mechanical properties and phase composition of the metal. Findings: at a cooling rate of less than 1°C/sec the impact strength of the specimens drops sharply, although their ultimate strength remains almost the same whether the cooling rate is 600°C/sec or 0.15°C/sec. At cooling rates of from 600 to 40°C/sec hardness changes insignificantly and amounts to ~250 kg/mm^2, but if the cooling rate is further reduced (to 1.2°C/sec), hardness begins to increase and reaches 290 kg/mm^2, but below 1.2°C/sec it decreases again, evidently owing to the congulation and precipitation of fine-disperse carbides. Radiographic examination showed that the decrease in the impact strength of 30Kh10G10 steel is due to both the decomposition of austenite with segregation of ϵ- and α-phases and the precipitation of carbides at grain boundaries with consequent embrittlement of grain boundaries. These structural transformations ($\gamma \rightarrow \epsilon \rightarrow \alpha$, with ultimate segregation of carbide phase) account for the deterioration in the plasticity and impact strength of the metal. Thus, the welding regime of 30Kh10G10 steel should be such as to assure a cooling rate of at least 1°C/sec; hence, during single-pass welding of 30Kh10G10 sheet steel (3-5 mm thick) the linear energy should not exceed 2000-2500 cal/cm, i.e. this steel should be welded at minimal current intensity and high speed. Orig. art. has: 4 figures, 3 tables.

SUB CODE: 11, 13/ SUBM DATE: 30Nov64/ ORIG REF: 004

Card 2/2 LC

L 11511-66 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) MJW/JD/WB

ACC NR: AP6003286 (N) SOURCE CODE: UR/0135/66/000/001/0029/0029

AUTHOR: Razikov, M. I. (Candidate of technical sciences); Il'in, V. P. (Engineer); Dubinin, L. G. (Engineer); Zubchenko, M. G. (Engineer); Izraylevich, I. I. (Engineer)

ORG: [Razikov, Il'in] UPI im. S. M. Kirov ; [Dubinin, Zubchenko] Tsimlyanskaya GES; [Izraylevich] Rostovenergoremont

TITLE: Use of 30Kh10G10 cavitation-resistant steel as lining for rotor wheel chambers of hydraulic turbines

SOURCE: Svarochnoye proizvodstvo, no. 1, 1966, 29

TOPIC TAGS: steel, turbine rotor, water turbine, wear resistant metal, protective coating/ 30Kh10G10 steel

ABSTRACT: At the Tsimlyanskaya Hydroelectric Power Station the rotor wheel chambers of hydraulic turbines, built of 30L steel, are subject to intensive cavitation over a depth of as much as 30 mm. Until 1962 these chambers were protected against cavitation by lining them with 18-8 type Cr-Ni steel. In 1962 during the overhaul of turbine no. 4 it was decided to experimentally line a part (9 m^2) of the surface area of its rotor wheel chamber with 30Kh10G10 Cr-Mn cavitation-resistant steel. This was done by using strips with a 3x50 mm cross section, 600 mm long, mounted vertically on the chamber walls and spaced 8-10 mm apart. The strips were welded onto the walls

Card 1/3 UDC: 66.023.8

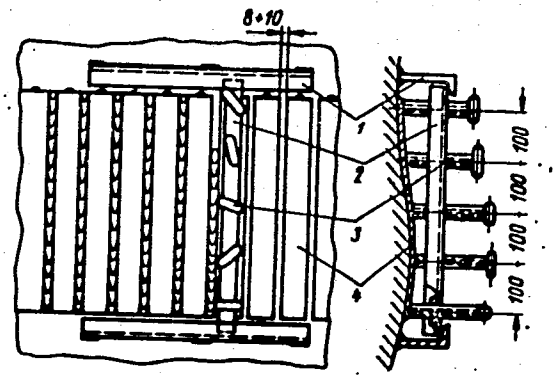


Fig. 1. Diagram of device for clamping the facing strips against the chamber wall:

1 - supporting bracket; 2 - sliding beam; 3 - clamping screw; 4 - facing strip

L 14511-66

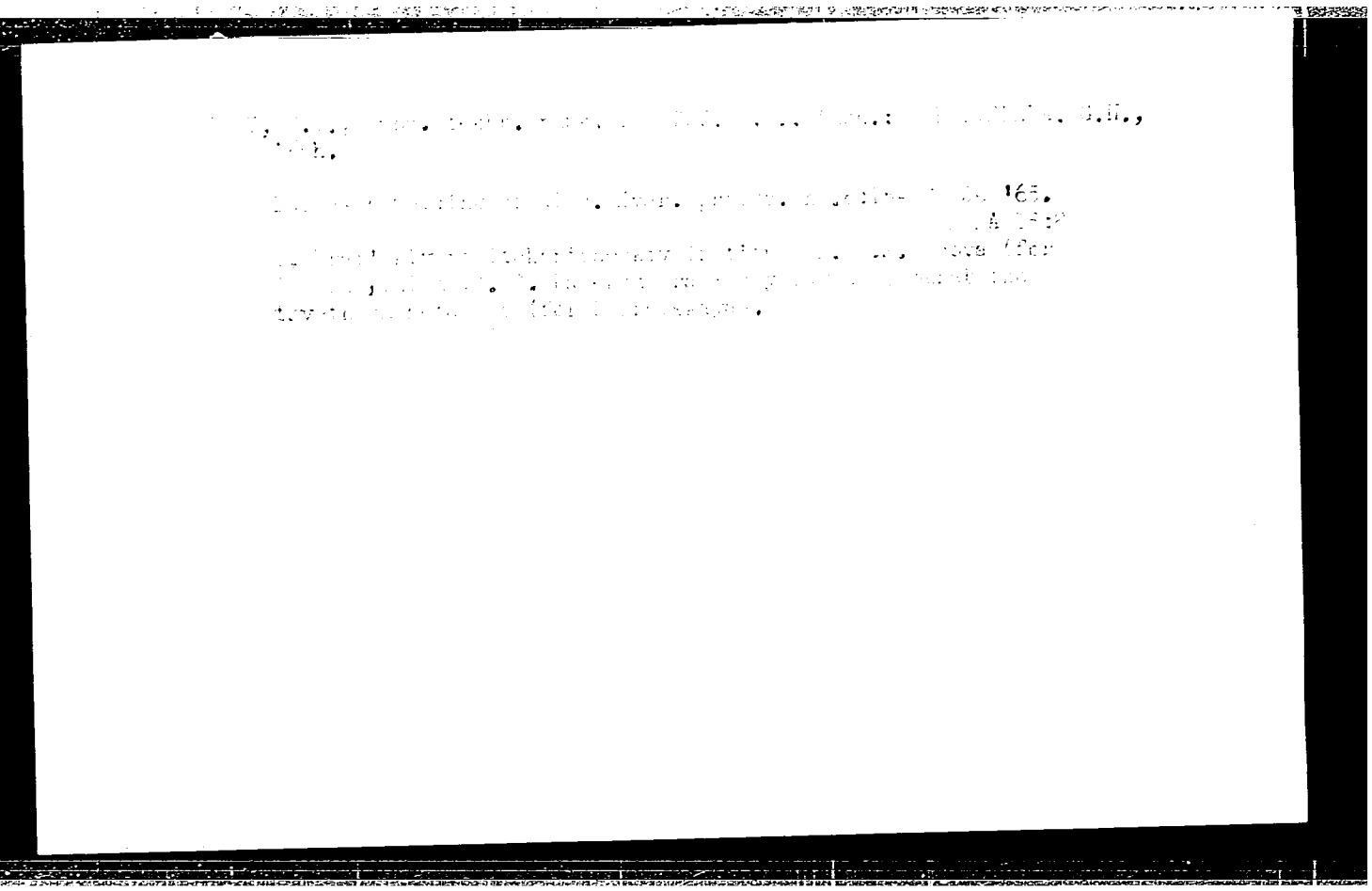
ACC NR: AP6003286 2

of the chamber manually by means of UPI-30Kh10G10-2 electrodes (diameter 4 mm, reversed-polarity DC, welding current 130-150 a). A year later inspection revealed no traces of cavitational erosion or damage to the strips. Hence in 1963 the entire rotor wheel chamber (area 39 m^2) of unit no. 3 at the same hydroelectric station was lined with 30Kh10G10 steel. To improve the quality of attachment of the strips, a special clamp was used (Fig. 1). Inspection of units no. 3 and 4 performed in May 1965 showed that the 30Kh10G10-steel lining in both units was in satisfactory state: there was neither any cavitational erosion nor any rupture of the strips. At present four rotor wheel chambers at the Tsimlyanskaya Hydroelectric Power Station are lined with 30Kh10G10 steel (aggregate area of lining: 118 m^2). The replacement of 1Kh18N9T steel with 30Kh10G10 steel as the lining of rotor wheel chambers in four turbines has made it possible to save about 2.5-3.0 tons of scarce chrome-nickel steel while at the same time providing a lining with a higher cavitation resistance. Orig. art. has: 1 figure, 1 table.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

TS

Card 3/3



L 3383-66 EWT(d)/EWT(m)/EWP(w)/EWP(i)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(z)/EWP(b)/EWP(l)/EWA(c) IJP(c) MJW/JD/HW

ACCESSION NR: AP5023085 UR/0125/65/000/009/0062/0064
621.791.92:621.9.06

AUTHOR: Razikov, M. I. (Candidate of technical sciences); Tolstov, I. A. (Engineer)

TITLE: Use of nickel-chromium-tungsten alloys for plating press dies

SOURCE: Avtomaticheskaya svarka, no. 9, 1965, 62-64

TOPIC TAGS: metal press, die, tungsten alloy, chromium alloy, nickel alloy, metal surfacing

ABSTRACT: At the present time, press dies are made of 3Kh2V8 steel with a hardness of 36-42 HRC, but their life is relatively short. A die with a hole diameter of 60-80 mm lasts for only two or three pressings of OTs4-3, M-1, M-2, and everdur alloys. A technique has been developed for renewing these dies by plating them with a powder welding rod in carbon dioxide gas, and this technique has been used to plate alloys of the following types: 3Kh2V8, 5Kh4V3FT, 5Kh3V11N4GT, 2Kh3V11N4GT) and 2Kh3V10GT (operating results are shown in tabular form). However, these alloys cannot be used at temperatures of 800-1200 C (the pressing temperature of copper, titanium, and other alloys). A heat

Card 1/2

L 3383-66

ACCESSION NR: AP5023085

resistant alloy has been developed which contains definite amounts of nickel, chromium, tungsten, titanium, and aluminum [Abstractor's Note: Exact composition not given.] The plating is done with a powder welding rod, with a nickel cover 15x0.8 mm filled with the above mentioned components. The plating obtained has a marked dendritic structure. Experimental aging of the alloy was done at temperatures of 750, 850, and 950C and the effect of aluminum and titanium content on the hardness of the metal after plating was investigated. Results show that maximum hardness is attained by aging at 950C for 6 hours. The effect of aluminum and titanium on the hardness is shown graphically. With an increase in number of pressings, the hardness of the nickel-chromium-tungsten layer increases continuously as a result of precipitation hardening. Use of the new alloy is recommended for difficult everdur, M-1, M-2, OTs4-3, and titanium alloys. Orig. art. has: 4 figures and 4 tables

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnic Institute)

SUBMITTED: 14Feb65 ENCL: 00 SUB CODE: MM, IE

NR REF SOV: 000 OTHER: 000

Card 2/2

RAZIKOV, M.I., kand. tekhn. nauk; MILICHENKO, S.L., inzh.

Welding and built-up welding of cavitation resistant 30Kh10G10 steel. Energomashinostroenie 11 no.6:32-35 Je '65. (MIRA 18:7)

RAZIKOV, M.I., kand. tekhn. nauk; MIRTS, R.I., kand. tekhn. nauk

Technological characteristics of welding and hard facing of cavitation-resistant 30Kh10G10 steel. Svar. proizv. no.7:19-22 Jl '64. (MIRA 18:1)

1. Ural'skiy politekhnicheskiy institut.

L 63867-65 EPA(s)-2/EWT(m)/EWP(w)/EPF(c)/EWP(i)/EWA(d)/EWP(-)/T/EWP(t)/
EWP(k)/EWP(b)/EWA(c) IJP(c) MJW/JD/HM/WB/EW/HW

ACCESSION NR: AP5015083 UR/0114/65/000/006/0032/0035
669.14.018.8:621.791

AUTHOR: Razikov, M. I. (Candidate of technical sciences); Milichenko, S. L. (Engineer)

TITLE: Welding of and facing with 30Kh10G10 cavitation-proof steel

SOURCE: Energomashinostroyeniye, no. 6, 1965, 32-35

TOPIC TAGS: steel welding, steel facing, cavitationproof steel / 30Kh10G10 steel

ABSTRACT: A new 30Kh10G10 austenitic unstable steel forms a martensite surface under plastic-deformation conditions (hydro micro-impacts), and hence is self-hardening. The new steel (0.28—0.32% C, 9--1% Cr, 9--10% Mn, 0.5% Ni or less, 0.5% Si, 0.025% S, 0.03% P) is intended for facing the working surfaces of hydro-machines made from low-alloy steels. The 30Kh10G10 steel has a rather poor machinability and weldability; hence, it is primarily used for building up the wornout surfaces of other steels. Additional alloying of the 30Kh10G10 steel by titanium and nitrogen is recommended; special electrodes and welding wires have been developed for welding and facing work. The new steel was used for cladding a turbine case at the Tsimlyanskiy Hydroelectric Power Station, for facing turbine rotor blades at the Bratsk and Dnepr Stations, for facing axial-pump blades, etc. Details of operating

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L 63867-65

ACCESSION NR: AP5015083

3

experience are given. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnic Institute)

44,55

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 011 OTHER: 000

Card 2/2

RAZIKOV, M.I.; KOROLEV, N.V.

Automatic deposition with a large diameter electrode. Avtom. svar. 18 no.5:35-37 My '65. (MIRA 18:6)

1. Ural'skiy politekhnicheskiy institut im. S.M. Kirova.

RAZIKOV, M.I.; MILICHENKO, S.L.

Effect of titanium on the properties and weldability of chromium-manganese cavitation-resistant steel. Avtom. svar. 17 no.7:11-19 Jl '64. (MIRA 17:8)

1. Ural'skiy politekhnicheskiy institut im. S.M. Kirova.

MILICHENKO, S.L., inzh.; RAZIKOV, M.I., kand. tekhn. nauk;
KOCHEVA, G.N., inzh.; KASHCHEYEV, V.A., inzh.;
FRANTSUZOV, D.M., inzh.

Repair of the rotor wheel of a hydraulic turbine using built-up welding with a cavitation resistant layer. Elek. sta. 35 no.5:37-41 My '64. (MIRA 17:8)

ACCESSION NR: AP4029258 S/0125/64/000/004/0075/0078

AUTHOR: Razikov, M. I. (Candidate of technical sciences); Tolstov, I. A. (Engineer)

TITLE: Selecting the base metal for welded-on press-bushings

SOURCE: Avtomaticheskaya svarka, no. 4, 1964, 75-78

TOPIC TAGS: press bushing, pressing, press bushing metal, 30KhGSA steel, PP-2Kh3V10GT powder wire

ABSTRACT: The heat distribution in press-bushings was studied by recording thermal cycles in the course of pressing aluminum and copper alloys. 30KhGSA-steel press-bushings were welded on with a PP-2Kh3V10GT powder wire at the Kamensk-Ural'skiy nonferrous-metal working plant. It was found that, during the press work, the depth of the "working layer" is 10-12 mm. The principal body of the bushing is heated only to 450C. Hence, expensive chromium-nickel steels

Card 1/2

ACCESSION NR: AP4029258

could be replaced with a low-alloy steel and a welded-on layer. The durability (wear resistance) of the welded-on (in CO_2) press-bushings is 2-2.5 times as high as the old-type (4KhNV-steel) bushing; about 20 kg nickel is saved in the case of a 1,500-ton press. Orig. art. has: 1 figure and 3 tables.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirov (Ural Polytechnic Institute)

SUBMITTED: 17May63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: MM NO REF SOV: 002 OTHER: 000

Card 2/2

RAZIKOV, M.I.; MILICHENKO, S.L.

Properties of welded joints in cavitation-resistant 30Kh10G10 chromium-manganese steel. Avtom.svar. 17 no.1:13-20 Ja '64. (MIRA 17:3)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.

ACCESSION NR: AP4009280 S/0125/64/000/001/0013/0020

AUTHOR: Razikov, M. I.; Milichenko, S. L.

TITLE: Characteristics of welded joints of cavitation-resistant chromium-manganese 30Kh10G10 steel

SOURCE: Avtomaticheskaya svarka, no. 1, 1964, 13-20

TOPIC TAGS: steel, 30Kh10G10 steel, chromium manganese steel, weld, welded joint, cavitation resistant steel, cavitation resistant steel welding

ABSTRACT: Results of the effect of electric-arc welding upon the structure of the weld-affected zone, mechanical properties, and the cavitation resistance of welded joints made from a new unstable-austenitic (Professor I. N. Bogachev's) 30Kh10G10 steel are reported. The chemical composition and mechanical data of the steel are given. As compared to 1Kh18N9T, 1Kh18N3G3D2, and 1Kh13 steels, the new steel has a far greater (21 to 127 times) cavitation resistance. A series

Card 1/2

ACCESSION NR: AP4009280

of tests revealed the following welding characteristics of 30Kh10G10 steel: (1) With a per-unit-length energy of 2,000 cal/cm or less, the weld-affected zone has the most favorable structure, the best mechanical characteristics, and the highest cavitation resistance; with a higher energy, the cavitation resistance becomes lower; (2) The spot in the weld-affected zone which is heated up to 800-850C is the most hazardous; upon a subsequent slow cooling, the mechanical characteristics of the metal, its strength and plasticity are considerably reduced; (3) The weld-on metal is also highly cavitation resistant. Orig. art. has: 8 figures and 3 tables.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirov (Ural Polytechnic Institute)

SUBMITTED: 22Apr63 DATE ACQ: 07Feb64 ENCL: 00

SUB CODE: ML NO REF SOV: 006 OTHER: 000

Card 2/2

KOCHEVA, G.N.; RAZIKOV, M.I., kand. tekhn. nauk, retsenzent;
KRUTAKHOVSKIY, V.G., inzh., red.

[Building up wear resistant surfaces] Naplavka iznosostoikikh poverkhnostei. Moskva, Mashgiz, 1963. 58 p.
(MIRA 17:4)

RAZIKOV, M.I., kand. tekhn. nauk

Manufacture and calculation of powder wire. Svar. proizv. no.8:31-34 Ag '63. (MIRA 17:1)

1. Ural'skiy politekhnicheskiy institut im. Kirova.

RAZIKOV, M.I.

Charging device on drawing machines for the manufacture of powder wire. Avtom. svar. 16 no.9:75-77 S '63. (MIRA 16:10)

1. Ural'skiy politekhnicheskiy institut.

RAZIKOV, M.I., kand.tekhn.nauk; KOKOREV, S.P., inzh.

Equipment for electric arc hard facing using a large-diameter electrode with transverse oscillations. Svar. proizv. no.9: 37-38 S '63. (MIRA 16:10)

1. Ural'skiy politekhnicheskiy institut im. S.M.Kirova.

RAZIKOV, Mikhail Ivanovich; MASLOV, Yu.A., inzh., retsenzent; DUGINA, N.A., tekhn. red.

[Automatic hard facing and build-up welding in an atmosphere of carbon dioxide]Avtoraticheskaia naplavka v srede uglekislogo gaza. Moskva, Mashgiz, 1962. 211 p. (MIRA 15:10)
(Hard facing) (Machinery--Maintenance and repair)

RAZIKOV, M.I.; Prinimali uchastiye: KHOVANETS, V.K., inzh.; KULISHENKO, B.A., inzh.; IL'IN, V.P., inzh.

New techniques for automatic hard facing in an atmosphere of carbon dioxide. Avtom. svar. 15 no.6:33-38 Je '62. (MIRA 15:5)

1. Ural'skiy politekhnicheskiy institut imeni S.M.Kirova.
(Hard facing) (Protective atmospheres)

RAZIKOV, M.I.; KOCHEVA, G.N.

Effect of carbon on the wear resistance of press-bushings for the press forging of copper and copper alloy products. Avtom. svar. 14 no.10:84-87 O '61. (MIRA 14:9)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova.
(Forging machinery) (Hard facing)

S/125/62/000/006/005/013
D040/D113

AUTHOR: Razikov, M.I.

TITLE: New automatic surfacing techniques with CO_2 shielding

PERIODICAL: Avtomaticheskaya svarka, no.6, 1962, 33-38

TEXT: The new surfacing techniques developed by the Ural'skiy politekhnicheskiy institut im.S.M.Kirova (Ural Polytechnic Institute im.S.M.Kirov) consist in automatic continuous depositing of the coating metal by a reciprocatively moving electrode. No preheating of the work is necessary, for the metal being surfaced heats sufficiently during the first few swings of the electrode, and the cooling rate is nearly the same as in surfacing with preheating. Brief heating with a gas torch prior to surfacing can be used. For surfacing small rolling mill rolls, it is recommended to use 80÷120 mm electrode travel and 5-7 mm bead at 1300-2300 cal/cm specific power, 300÷360 amp, 22÷24 v, 30 m/hr speed, 2.6÷2.8 mm electrode diameter, ПП-3Х2В8ГТ (PP-3Kh2V8GT) electrodes, 10-13/hr CO_2, etc. Surfacing large blast furnace bells is mentioned

Card 1/2

as one of the best applications of the new surfacing method. Conclusions: (1) the new technology eliminates preheating; (2) the heat cycle evens out after 2-3 movements of the electrode; the cooling rate in the range of lowest austenite stability in 3Kh2V8 (3Kh2V8) steel is below 30°C/sec, which prevents martensite formation and cracks in the coating; (3) the metal temperature can be raised to 300-400°C just before depositing the work layers of the coating by using heat-insulating shields on the work; (4) the method reduces electric power consumption, and raises the efficiency of the surfacing equipment. There are 7 figures.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M.Kirova (Ural Polytechnic Institute im. S.M.Kirov)

SUBMITTED: February 25, 1961

KHRUSTALEV, Leonid Yakovlevich; RAZIKOV, M.I., kand. tekhn. nauk, retsenzent; DENISOV, Yu.A., inzh., red.; DUGINA, N.A., tekhn. red.

[Automatic arc welding and hard facing]Avtomaticheskaia dugovaia svarka i naplavka. Moskva, Mashgiz, 1961. 43 p. (Nauchno-populiarnaia biblioteka rabochego-svarshchika, no.11) (MIRA 15:3)

(Electric welding) (Hard facing)

29050
S/125/61/000/010/010/014
D040/D112

18.1220

AUTHORS: Razikov, M.I.; Kocheva, G.N.

TITLE: The effect of carbon on the wear-resistance of press-bushings for copper and copper alloys

PERIODICAL: Avtomaticheskaya svarka, no. 10, 1961, 84-87

TEXT: Information is presented on the results of an investigation of the effect of the carbon content of the metal used to surface hot press-bushings made from 3Х2В8 (3Kh2V8) and 4ХНВ(4KhNV) alloy steel on the wear-resistance of the latter. These bushings have to withstand a temperature of 950-1200°C, a pressure of 100 kg/mm^2 and over, and abrasion; their life was short before automatic surfacing with wear-resistant alloys was introduced. The investigation, carried out by the Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute), in conjunction with the Kamensk-Ural'skiy zavod obrabotki tsvetnykh metallov (Kamensk-Ural'skiy Plant for the Processing of Nonferrous Metals) showed that the durability of surfaced press-bushings depends in a high degree on the carbon content in a Х2В8ГТ (Kh2V8GT) type lining (Table).

Card 1/4

29050
S/125/61/000/010/010/014
D040/D112

The effect of carbon on ...

(%) C	Mn	Si	Cr	W	Ti	V	Ni	S	P	Durability of bushings (number of pressings)
0.17	0.78	0.16	2.51	9.2	0.24	0.27	0.5	Not determined	Not det.	15,270
0.32	0.79	0.31	2.60	7.8	0.46	0.37	0.6	0.006	0.009	7,430
0.37	0.90	0.31	2.40	7.7	0.46	0.35	0.5	0.007	0.009	5,800
0.41	1.1	0.13	2.60	9.9	0.29	0.4	0.48	0.008	0.006	4,450
0.46	1.1	0.25	2.77	9.7	0.27	0.3	0.55	Not det.	Not det.	3,550

The composition of 4KhNV steel is the following: 0.33% C, 0.55% Mn, 0.24% Si, 1.09% Cr, 0.86% W, 3.8% Ni. The carbon content in the surfacing metal was varied by varying the composition of the powder wire. The tests were carried out in a horizontal hydraulic "Shleman" press during the pressing of copper, bronze and brass articles heated to 750-950°C. As seen from the

Card 2/4

table, the durability of the bushings dropped by over four times when the carbon content was increased from 0.17 to 0.46%. The highest durability was observed at a content not above 0.22%. When the C content was below 0.15%, the metal was more prone to porosity. The cause of the effect of the carbon content on the durability of the bushings was investigated by hardness measurements in an especially equipped Brinell test press that was fitted with an electric heater, a water-filled aluminum screen protecting the press, and indentors made of ВК 2 (VK2) alloy. The results are shown in a graph (Fig.). When the carbon content was increased, the hardness of the coating increased at temperatures up to 400°C but fell at 700-800°C. The reduction of the wear-resistance of the bushings heated to 750-800°C, when the carbon content is increased, is thus due to a reduction in hardness of the surfacing. The hardness dropped from 230 to 40 kg/mm^2 (Kubasov hardness) when the carbon content was increased from 0.15 to 0.96%. There are 2 figures and 3 Soviet references.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M. Kirova (Ural Polytechnic Institute im. S.M. Kirov)

SUBMITTED: February 25, 1961

RAZIKOV, M.I., kand.tekhn.nauk, BOBROV, Ye.I., kand.tekhn.nauk

Automatic hard facing of press bushings by means of a powder metal wire in an atmosphere of carbon dioxide. Svar. proizv. no.2:29-30 F '60. (MIRA 13:6)

1. Ural'skiy politekhnicheskiy institut.
(Hard facing) (Protective atmospheres)

84343

S/135/60/000/002/003/003
A115/A029

1.2300 2208 only

AUTHORS: Razikov, M.I. and Bobrov, Ye.I., Candidates of Technical Sciences

TITLE: Automatic CO_2-Shielded Surfacing of Press-Bushes by Powder Wires

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 2, pp. 29 - 30

TEXT: In this article which was worked out in cooperation with G.N. Pokrovskaya L.M. Lipovetskiy, B.S. Bril', V.K. Khovanets, G.N. Kochev, and others a new automatic CO_2-shielded surfacing method is described. This method was developed by the Kafedra "Svarochnoye proizvodstvo" Ural'skogo politekhnicheskogo instituta im. S.M. Kirova ("Welding Production" Department of the Ural Polytechnic Institute im. S.M. Kirov) in cooperation with the Kamensk-Ural'skiy zavod obrabotki tsvetnykh metallov (Kamensk-Ural Non-Ferrous Metal Processing Plant) in 1959. The build-up process designed to increase the fatigue resistance of press-bushes is shown in Figure 1. The welding torch with a dual gas supply line is shown in Figure 2 and the entire build-up welding device in Figure 3. The device consists of a swivelling base for the press-bush, an A-409 (A-409) welding head, an electric pre-heating furnace, a ventilation, a CO_2 container and sundry welding equipment. With this device the inside surfaces of press-bushes can be built-up at a rate of 17-20 m/h. Among tested powder wires the

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S/135/60/000/002/003/003
A115/A029

Automatic CO_2-Shielded Surfacing of Press-Bushes by Powder Wires

best results were achieved by ПП-6Х3В10Г Т(PP-6Kh3V10GT) wire (test 3) which was consequently approved of for production purposes. The chemical composition of the PP-6Kh3V10GT wire and of the third built-up metal layer are shown in the Table on Page 30. Basic condition parameters are given followed by a brief description of the building-up method. Cracks are prevented by pre-heating of press-bushes at 350-400°C. The average number of applied layers is 3-5 and no thermal processing is required. Operating condition tests showed that the fatique-resistance of built-up press-bushes is 3-4 times greater than that of new ones. There are 2 figures, 1 table and 1 photograph.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

Card 2/2

25(7) SOV/125-60-1-11/18

AUTHOR: Razikov, M.I.

TITLE: A Welding Tractor on Magnetic Caterpillar Chains

PERIODICAL: Avtomaticheskaya svarka, 1960, Nr 1, pp 79-82 (USSR)

ABSTRACT: The two magnetic track welders described, the "MGT-4" and "MGT-5" were developed by the author, and have different caterpillar tracks to the "A-501" designed by the Institut elektrosvarki im. Ye.O. Patona (Institute of Electric Welding imeni Ye.O. Paton) and other "walking" welders. The magnetic caterpillar tracks grip any working surface of any shape - flat, cylindrical or curved. Both (particularly the "MGT-5") have important advantages. They make arc and electro-slag welding possible from any position, follow the working surface and, during vertical seam welding, can negociate obstacles like 6 m cross-welds or rods. The article gives detailed design and operational information. Both welders are shown in photographs. The information on the

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SOV/125-60-1-11/18

A Welding Tractor on Magnetic Caterpillar Chains

"MGT-5" includes a diagram of its kinematic system (Figure 3) and the electric wiring diagram (Figure 5). Both welders have water cooled sliders shaping the weld by pressure. The "MGT-5" was tested with satisfactory results in electro-slag forced-shaped welding of sheets 30 to 54 mm thick. The following persons helped to develop the welders: Assistant Professor V.K. Khovanets, and UPI students V.Kemen', V. Ritka, and V. Yuretskiy. There are 2 photographs and 2 diagrams.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M. Kirova (UPI) (Ural Politechnical Institute imeni S.M. Kirov)

SUBMITTED: September 8, 1959.

Card 2/2

25(7) SOV/125-60-1-11/18

AUTHOR: Razikov, M.I.

TITLE: A Welding Tractor on Magnetic Caterpillar Chains

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Card 1/2

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ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M. Kirova (UPI) (Ural Politechnical Institute imeni S.M. Kirov)

SUBMITTED: September 8, 1959.

Card 2/2

RAZIKOV, M.I.

Primary weld metal crystallization in fusion welding. Avtom. svar. 11 no.8:60-62 Ag '58. (MIRA 11:10)

1.Ural'skiy politekhnicheskiy institut im. S.M. Kirova.
(Welding) (Solidification)

AUTHOR: Razikov, M.I. SOV-125-58-8-9/16

TITLE: On the Problem of Initial Crystallization of the Metal Weld in Fusion Welding (K voprosu o pervichnoy kristallizatsii metalla shva pri svarke plavleniyem)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 8, pp 60-62 (USSR)

ABSTRACT: From investigations carried out at the laboratory of the Ural Polytechnic Institute, it follows that one of the primary laws of crystallization in fusion welding is the dependence of the size of the seam metal dendrites on the size of grains in the base metal. This is particularly clear if the seam composition approaches the chemical composition of the base metal. K.V. Lyubavskiy proposed a method of reducing dendrite size in cast coarse-grained austenitic steels by cold hardening of the edges to be welded. In general, the size of the weld metal dendrites in fusion welding can be effectively controlled by such means which entail minimum grain growth of the base metal at the fusion zone.
There are 4 micro-photographs and 4 Soviet references.

Card 1/2

SOV-125-58-8-9/16

On the Problem of Initial Crystallization of the Metal Weld in Fusion Welding

ASSOCIATION: Ural'skiy politekhnicheskiy institut imeni S.M. Kirova
(The Ural Polytechnic Institute imeni S.M. Kirov)

SUBMITTED: February 2, 1958

1. Welding--Processes 2. Welds--Crystallization

Card 2/2

RAZIKOV, M. I.

Wear resistance of deposited metal at high temperatures during friction. Avtom. svar. 13 no.9:38-42 S '60. (MIRA 13:10)

1. Ural'skiy politekhnicheskiy institut.
(Metals at high temperature)
(Mechanical wear)

KARLOV, K.A.; SHULYAT'YEV, I.I.; RAZIKOV, N.N., inzh.

Carding machines for large packages. Tekst.prom. 20 no.1: 70-72 Ja '60. (MIRA 13:5)

1. Glavnyy inzhener kombinata "Krasnoye Znamya" (for Karlov).
2. Zaveduyushchiy tsentral'noy laboratoriyey kombinata "Krasnoye Znamya" (for Shulyat'yev).
(Carding machines)

BAZILEVSKIY, S.A., kand. tekhn. nauk

Reliability of calculations. Sudostroenie 25 no.6:15-16 Je '59.
(MIRA 12:9)
(Naval architecture--Tables, calculations, etc.)

RAZIM, M., inz.

"Principles of automation and technological cybernetics" by A.A. Krasovskij[Krasovskiy, A.A.], G.S. Pospelov. Reviewed by M. Razim. Automatizace 6 no.7:Suppl: Technicka literatura: Insert Jl '63.

RAZIM, M., inz.

"Calculation of control circuits" by D.V.Vasil'yev, V.G.Chuich [Chuich, V.G.]. Reviewed by M.Razim. Automatizace 8 no.2: Suppl:Technicka literatura:insert F '65.

RAZIM, M.

"Regulation circuits with the I and P regulators" by G.Schwarze. Reviewed by M. Razim. Automatizace 7 no.2: Suppl.:Technicka Literatura, insert F'64

1655. **The Role of the Pylorus in the Evacuation of the Stomach.** (К вопросу о роли привратника в эвакуаторном процессе желудка)

N. P. Razimov and K. P. Vasilyeva. *Клиническая Медицина* [*Klin. Med., Mosk.*] **27**, No. 9, 61–65, Sept., 1949.

Radiological investigations were carried out by the authors on 78 subjects at set intervals for 2 to 3 hours and some data on the evacuation of the stomach were obtained. [It is not mentioned whether the subjects were healthy adults or not.]

In one group stomach evacuation was mainly produced by the activity of the antrum; the duodenal reflex was absent or moderate. In a second group evacuation of the stomach was mainly conditioned by the readiness of the duodenum to receive the gastric contents. In the first group three types of evacuation were observed. (1) Evacuation mainly due to forceful contraction of the stomach with very slight reflex activity of the duodenum. The pylorus was open and continuous rapid evacuation took place. (2) Rhythmic evacuation due to rhythmic motor activity of the antrum, moderate inhibitory reflex activity of the duodenum being present. (3) Hyperkinesis of the antrum with stasis of the gastric contents in front of the pyloric canal; very little reflex activity of the duodenum. In the second group two types of evacuation were observed. (i) Easy flow of the stomach contents through the pylorus into the duodenum (very

quate duodenal inhibitory reflexes with the appearance of inhibitory reflexes in the jejunum; duodenal stasis ensued.

The length and width of the pyloric canal changed during evacuation. (Length and width were determined by the maximum amount of gastric contents it could hold.) When the duodenum showed high inhibitory reflex activity the pyloric canal was narrow, whereas the length seemed to be in reverse proportion to the activity of the antrum. The authors maintain that in the evacuation of the stomach the activity of the antrum and the duodenal reflexes are of primary importance, pyloric activity being guided by them.

N. Chaclain

Abstracts of World Medicine Vol 7 1950

RAZIMOV, Z.

USSR / General and Specialized Zoology. Insects. P
Insect and Mite Pests.

Abs Jour : Ref Zhur - Biol., No 10, 1958, No 44805

Author : Razimov, Z.
Inst : Not Given
Title : Organic Chlorine Preparations and Systemic Poisons in the Control of Spider Mites and Aphids on Cotton.

Orig Pub : Sots. s. kh. Azerbaydzhan, 1957, No. 6, 44-46.

Abstract : Best results against the mite were obtained in 1958 with 8% emulsions of polychlorcamphene and photochemical chlorthane. Mercaptophos (1.5 - 2 kg/ha) and octamethyl (2 - 2.5 kg/ha) were very toxic to the mite when the length of systemic action was 20-25 days and the application rate of the liquid was 300-600 litres per hectare; they were toxic to the aphid when the rate was 1.2 kg/ha.

Card 1/1

POMADCHIN, I. V.; NAZAROV, V. N.; RAZIKOV, R. K.

Automatic spindleless remover of linens from scutchers. Biul. tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. no.10:52-53 '62. (MIRA 15:10)

(Textile machinery)

S/109/60/005/04/017/028
E140/E435

AUTHORS: Razin, A.A., Tarasova, L.V. and Tsukerman, V.A.

TITLE: Cine Microphotographs of Electrodes in the Pre-Breakdown Phase and in Electric Breakdown in High Vacuum

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 4, pp 666-671 (USSR)

ABSTRACT: This paper was presented at the 2nd All-Union Conference on Gas Electronics, October 1958.

Using microphotographs, it is shown that electrode surfaces in high vacuum change their microrelief both in the breakdown and in the pre-breakdown phase. A series of experiments was run with high contamination of the electrodes by deposition of oil in prolonged pumping by an oil diffusion pump without freezing-out the oil. The photographs clearly show the formation of projections in the oil film under the action of a strong electric field. When the electrodes are cleaned of oil, the formation of metal points and their rupture is observed accompanied by breakdown of the gap.

Acknowledgements are expressed to L.N.Vorob'yev for her assistance with the experiments and illustration.

Card 1/2

S/109/60/005/04/017/028
E140/E435

Cine Microphotographs of Electrodes in the Pre-Breakdown Phase and in Electric Breakdown in High Vacuum

There are 6 figures and 5 references, 3 of which are Soviet and 2 English.

SUBMITTED: July 30, 1959

Card 2/2

MERSON, Yakov Iosifovich, inzh.; SHAMILEV, Mikhail Richardovich, inzh.; RAZIN, Konstantin Alekseyevich, inzh.; SHTEYNBOK, G.Yu., inzh., ved. red.; SOROKINA, T.M., tekhn. red.

[Photopyrometry for the determination of surface temperature fields] Fotopirometricheskoe opredelenie polei temperatur poverkhnostei. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 21 p. (Peredovoi nauchno-tekhn. i proizvodstvennyi opyt. Tema 34. No.P-58-91/11) (MIRA 16:3)
(Pyrometry) (Photometry) (Surfaces (Technology))

[illegible], A. A.

Raw material resources of building material in Central Asia in districts near the cities Tashkent, Leninabad, Kokand, Fergana, Namangan, Andizhen, Samarkand, Kazan, Chardzhou. Moskva, 1940. 112. (54-48563)

Razin, A. I.

2835. The manufacture of baths from pressed slips by casting.—A. I. RAZIN (*Glass & Ceramics*, Moscow, 11, No. 6, 17, 1954). Until recently the production of ceramic baths in a Kiev (Russia) plant was based on obsolete methods (hand shaping, etc.). Now the whole process has been reorganized and the baths are cast. A detailed description of the flow-sheet is given. (3 figs.)

RAZIN, A. I.

USSR/Miscellaneous Ceramics Industry

Card : 1/1

Authors : Razin, A. I.

Title : Manufacture of bathtubs from chamotte-treated masses by the use of the casting method

Periodical : Stek. i Ker., No. 6, 17 - 19, June 1954

Abstract : The process of casting bathtubs from a chamotte treated mass is described. The chemical composition of such a mass is: SiO_2-62.1%, Al_2O_3-34.6%, Fe_2O_3-0.858%, MgO-0.277%, CaO-0.396%, K_2O-0.314% and Na_2O-0.415%. Illustrations.

Institution : ....

Submitted : ....

RAZIN, A.I.

Producing bathtubs from refractory material by casting. Stek.i ker. 11 no.6:17-19 Je '54. (MLRA 7:6)
(Ceramic industries)

RAZIN, I.

Semiprepared foods for 33 lunchrooms. Obshchestv. pit. no. 7:7 Jl '59. (MIRA 11:7)

1. Zamestitel' direktora fabriki-kukhni Nevskogo rayona g. Leningrada.
(Leningrad--Restaurants, lunchrooms, etc.)

L 41032-65 EWT(d)/EWT(m)/EWP(w)/T-2 EM

ACCESSION NR: AP5008577 S/0286/65/000/006/0113/0113

AUTHORS: Zuyev, M. A.; Razin, G. M.; Krylov, V. M.; Volkov, A. F.; Timoshin, Ye. P.; Sterlikov, V. P.; Gozulov, S. A.; Lemasov, V. B.; Kirolyubov, G. P.

TITLE: Test stand for creating impact overloads. Class 62, No. 169407

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 6, 1965, 113

TOPIC TAGS: impact testing

ABSTRACT: This Author Certificate presents a test stand for creating impact overloads. The stand contains a truss with controlling cables, a hoisting device, a platform for the investigated object, a cable with a suspension system, a cut-off mechanism, a braking mechanism, shock absorbers, and instruments for measuring the platform drop rate. To increase the safety of the experiment and to exclude the effect of the prescribed height on the free fall of the platform, the stand is provided with a contactless mechanism for setting the height (see Fig. 1 on the Enclosure). It consists of a transmitting selsyn connected by a flexible shaft to the shaft of an electric tackle drum, a receiving selsyn placed in the frame of the mechanism, and a mechanism reductor. A setting indicator with a knob and contact, a sliding indicator with a contact, a height indicator scale,

Card 1/2

L 41032-65

ACCESSION NR: AP5008577

and a stop relay are connected in the magnetic starter circuit of the electric tackle. Orig. art. has: 1 diagram.

ASSOCIATION: none

SUBMITTED: 02Jan64 ENCL: 01 SUB CODE: ME

NO REF SOV: 000 OTHER: 000

Card 2/3

ROZHKOV, I.S.; KUTSUL, V.I.; RAZIN, L.V.; BORISHANSKAYA, S.S.; Prinimal uchastiye BOGOMOLOV, M.A.; IMSHENETSIY, A.I., red. izd-va; ASTAF'YEVA, G.A., tekhn. red.

[Platinum in the Aldan Shield] Platina Aldanskogo shchita. Moskva, Izd-vo Akad. nauk SSSR, 1962. 118 p. (MIRA 15:5)

1. Chlen-korrespondent Akademii nauk SSSR (for Rozhkov).
(Aldan Plateau--Platinum)